

Faculty of mathematics and physics
Charles University at Prague
25th March 2011



UT2004 bots made easy!

Pogamut 3

Lecture 3 – Weapons & Stuff



Warm up!

Fill the test for this lecture!

Home work: Collector-RetaliatorBot

Let's review home works from previous lectures!

Today's menu

1. Weapons of UT2004
 - ItemDescriptor(s)
 - Item.Category.WEAPONS
 - this.weaponry
2. Weapon preferences & ImprovedShooting
 - Handling weapon preferences
 - Cooldown & Heatup
3. Interesting items
 - Things you should not miss!
4. HunterBot
 - Example implementation

ItemDescriptor(s)

- Every item is “well” described

```
Item item =
    items.getAll(ItemType.Category.WEAPONS).values().it
    erator().next();
WeaponDescriptor weaponDesc =
    (WeaponDescriptor)
    descriptors.getDescriptor(item.getType());
if (weaponDesc.getPriDamage() > 50) {
...
}
```

- Ammo/Armor/HealthDescriptor available as well

Weaponry

- `this.weaponry` all you wanted to know about bot weapons and were afraid to ask

```
weaponry.getCurrentWeapon()
```

```
weaponry.hasWeapon(ItemType)
```

```
weaponry.hasLoadedWeapon()
```

```
weaponry.hasPrimaryLoadedWeapon()
```

```
weaponry.hasSecondaryLoadedWeapon()
```

```
weaponry.getLoadedWeapons()
```

```
weaponry.changeWeapon()
```

- returns boolean

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WeaponPreferences

- Weapons' effectiveness depends on distance to target
- Thus you should create different priority list for various "ranges"
- Wrapped in `weaponPrefs`

```
weaponPrefs.addGeneralPref(ItemType.MINIGUN, true);  
weaponPrefs.addGeneralPref(ItemType.LINK_GUN, false);  
  
weaponPrefs.newPrefsRange(CLOSE_COMBAT_RANGE = 300)  
    .add(ItemType.FLAK_CANNON, true)  
    .add(ItemType.LINK_GUN, true); // 0-to-CLOSE  
  
weaponPrefs.newPrefsRange(MEDIUM_COMBAT_RANGE = 1000)  
    .add(ItemType.MINIGUN, true)  
    .add(ItemType.ROCKET_LAUNCHER, true); // CLOSE-to-MEDIUM
```

- true -> primary firing mode
- false -> secondary firing mode
- If **range** prefs fails, **general** are used
- You have to experiment! (*== behavior parametrization!*)

WeaponPreferences

- Easy to use!

```
Player enemy =
    players.getNearestVisiblePlayer();

shoot.shoot(weaponPrefs, enemy);

shoot.shoot(weaponPrefs, enemy,
    ItemType.ROCKET_LAUNCHER);
// do not use rocket launcher

shoot.shoot(weaponPrefs, enemy);

shoot.setChangeWeaponCooldown(millis);
```

Cooldown

- Sometimes you need to perform the behavior “once in a time” => Cooldown

```
Cooldown rocketCD = new Cooldown(2000);  
                        // millis
```

```
If (rocketCD.isCool()) {  
    rocketCD.use();  
    shoot.shoot(weaponPrefs, enemy);  
} else {  
    shoot.shoot(weaponPrefs, enemy,  
        ItemType.ROCKET_LAUNCHER);  
}
```

Heatup

- Sometimes you need to pursue some behavior for a while => Heatup

```
Heatup pursueEnemy = new Heatup(3000);  
                                // millis
```

```
if (players.canSeeEnemy()) {  
    pursueEnemy.heat();  
    // fight the enemy  
} else  
if (pursueEnemy.isHot()) {  
    // pursue the enemy  
} else {  
    // collect items  
}
```

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Interesting items

```
ItemType.FLAK_CANNON  
        .MINIGUN  
        .LIGHTING_GUN  
        .ROCKET_LAUNCHER
```

```
ItemType.SUPER_HEALTH  
        .SUPER_ARMOR  
        .SHIELD_PACK  
        .SUPER_SHIELD_PACK  
        .U_DAMAGE_PACK
```

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4. **HunterBot**
 - **Example implementation**

Hunter bot archetype

- Create example project from archetype

GroupId:

cz.cuni.amis.pogamut.ut2004.examples

ArtifactId:

o4-hunter-bot-archetype

Version:

3.2.0

Repository:

<http://diana.ms.mff.cuni.cz:8081/artifactory/repo>

Assignment (or HomeWork)

- Extend HunterBot
 1. Provide better weapon preferences
 2. Provide better behavior switching
 - Try to balance priorities / parameters!
 3. Try to implement simple approach / flee behavior
 4. Use DM-10n1-Albatross map

Send your assignments to

- Completely zip-up your project(s) folder
- Send it to:
 - Jakub Gemrot (Friday practice lessons)
 - jakub.gemrot@gmail.com
 - Michal Bída (Wednesday practice lessons)
 - michal.bida@gmail.com